Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Deleted subject matter is shown in strike-through and inserted text is shown underlined.

Listing of claims:

1. (Currently Amended) A method of measuring a QT interval of an electrocardiogram (ECG) signal wherein an end of a T wave is identified from ECG data, the method comprising the steps of :

(a) acquiring ECG signal data from a signal acquisition apparatus or from a data storage;

(b) deriving a first set of ECG signal data from the acquired ECG signal data using an electronic system;

(c) inverting the first set of ECG signal data to derive a second set of ECG signal data using the electronic system, said second set of ECG signal data comprising an inverted set of said first set of ECG signal data; and

(d) determining the end of the T wave ~~being determined~~ using the electronic system by reference to timing of at least one intersection at which an upright T wave of a said first set of derived ECG signal data intersects an inverted T wave of a said second set of derived ECG signal data, the two sets of ECG data being superimposed so as to maximize data fit over a segment of ECG signal after a peak of the positive T wave.

2. (Previously Presented) The method as claimed in claim 1 wherein the data fit is maximised by a least squares calculation.

3. (Currently Amended) The method as claimed in claim 1, wherein:

~~the method comprises~~ the ~~step~~ steps of ~~: (a) acquiring ECG signal data; (b)~~ deriving a first set of ECG signal data from the acquired ECG signal data comprise deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;

the inverting step comprises ~~(c)~~ inverting the first set of reduced noise ECG signal data to derive an inverted set of reduced noise ECG signal data; and

the method further comprises the steps of:

~~(d)~~ (e) identifying a portion of each set of ECG signal data corresponding to said segment;

~~(e)~~ (f) calculating an offset such as to fit the first set of data to the inverted set of data over said segment;

~~(f)~~ (g) detecting at least one intersection between the first set of data and the inverted set of data by reference to said offset; and

~~(g)~~ (h) determining an end of said QT interval by reference to timing of the detected intersection.

4. (Currently Amended) The method as claimed in claim 3 wherein in step ~~(g)~~ (h) the end of the QT interval is determined by a first point intersection.

5. (Previously Presented) The method as claimed in claim 4 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.

6. (Currently Amended) The method as claimed in claim ~~1~~ 5, ~~wherein~~ further comprising the steps of:

determining the noise content in a segment of the ECG signal deemed to be an isoelectric baseline segment; and

varying said interval ~~can be varied~~ according to noise content in said segment ~~in a segment of an ECG deemed to be an isoelectric baseline segment~~.

7. (Currently Amended) The method as claimed in claim 3 wherein:

the signal acquisition apparatus comprises multiple ECG signal acquisition leads;

the ECG signal data comprise an ensemble of ECG signals which have been acquired from the ensemble of multiple acquisition leads; and

step (b) comprises calculating a median signal for each time from ~~an~~ the ensemble of ECG signals for each lead to reduce low frequency baseline noise.

8. (Previously Presented) The method as claimed in claim 7 wherein the step (b) further comprises smoothing the median signal with a moving median filter to reduce high frequency noise.

9. (Currently Amended) The method as claimed in claim 8 wherein the step (b) further comprises filtering the smoothed median signal using a wavelet frequency thresholding technique which subtracts magnitudes of any non-zero frequency components within a segment of the ECG deemed to be an isoelectric baseline segment ~~the isoelectric baseline segment~~ from the rest of the ECG signal thus further de-noising it.

10. (Previously Presented) The method as claimed in claim 9 wherein the step (b) further includes vertically shifting the smoothed median signal so that a minimum value after peak of T is zero.

11. (Previously Presented) The method as claimed in claim 10 wherein the step (b) further comprises detecting and correcting baseline drift in the first set of ECG data.

12. (Currently Amended) The method as claimed in claim 11 wherein the detecting includes testing for presence of a single crossing of ~~one~~ an isoelectric line by said first set of ECG data.

13. (Currently Amended) The method as claimed in claim 12 wherein ~~an ensembled~~ the ensemble of ECG signals is rotated about a zero point ~~or otherwise transformed~~ to reconfigure the set of ECG data to have multiple crossings of said line.

14. (Currently Amended) The method as claimed in claim ~~3~~ 7 wherein the step (b) further includes applying a non-linear function ~~such as squaring amplitudes of~~ to the signal for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.

15. (Currently Amended) The method as claimed in claim 14 wherein the step (b) further includes summing squared amplitudes of ~~ensembled~~ an ensemble of orthogonal leads over all time instants to give a squared resultant vector ~~ensembled~~ of the ensemble of ECG signals.

16. (Currently Amended) The method as claimed in claim ~~1~~ 7 wherein the method further includes finding a beginning of the QT interval ~~by an established method~~ from the median of said ensemble of ECG signals from all of said leads.

17. (Currently Amended) The method as claimed in claim 16 wherein the method includes calculating the QT interval by subtracting the beginning of the QT interval obtained from the median of said ensemble of ECG signals from all of said leads from the end of the T wave determined in step (d).

18. (Previously Presented) The method as claimed in claim 1 wherein the QT interval is measured for squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and a longest of QT measurements made in 3 dimensions is made.

19. (Previously Presented) The method as claimed in claim 3 wherein the ECG signal data is acquired in step (a) from a set of standard ECG leads including I, aVf and V2.

20. (Currently Amended) An apparatus for measuring the QT interval of an electrocardiogram (ECG) signal ~~comprising means for~~ by identifying an end of a T wave from ECG data, said apparatus comprising:

(a) means for acquiring ECG signal data;

(b) means for deriving a first set of ECG signal data from the acquired ECG signal data;

(c) means for inverting the first set of ECG signal data to derive a second set of ECG signal data, said second set of ECG signal data comprising an inverted set of said first set of ECG signal data; and

(d) means for determining the end of the T wave, said T -wave being defined as a first time of intersection at which an upright T wave of ~~a~~ said first set of derived ECG signal data intersects an inverted T wave of ~~a~~ said second set of derived ECG signal data, the two sets of data being superimposed so as to maximise data fit over a segment of the ECG signal after a peak of the positive T wave.

21. (Previously Presented) The apparatus as claimed in claim 20 wherein the data fit is maximised by a least squares calculation.

22. (Currently Amended) The apparatus as claimed in claim 20 wherein the apparatus <u>further</u> comprises:

~~means for acquiring ECG signal data;~~

means for deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;

means for inverting the first set of reduced noise ECG signal data to derive an inverted set of reduced noise ECG signal data;

means for identifying a portion of each set of ECG signal data corresponding to the segment;

means for calculating an offset such as to fit the first set of data to the inverted set of data over said segment;

means for detecting at least one intersection between the first set and the inverted set of data by reference to said offset; and

means for determining an end of said QT interval by reference to timing of the detected intersection.

23. (Currently Amended) The apparatus as claimed in claim 22 ~~wherein in the means for determining the end of said QT interval~~ <u>the acquired ECG signal data has been obtained from an ensemble of orthogonal leads is operable such that</u> the QT interval is determined by a first point of intersection.

24. (Previously Presented) The apparatus as claimed in claim 23 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.

25. (Currently Amended) The apparatus as claimed in claim ~~22 wherein~~ <u>24</u> <u>further operable to determine the noise content in a segment of the ECG signal deemed to be an isoelectric baseline segment, and to vary</u> said interval ~~is varied~~ according to noise content in ~~a~~ <u>said</u> segment ~~of an ECG deemed to be the isoelectric baseline segment~~.

26. (Currently Amended) The apparatus as claimed in claim 22 wherein, where the acquired ECG signal data has been obtained from an ensemble of ECG signals from multiple leads, the means for deriving a first set of reduced noise ECG signal data comprises means for calculating a median signal for each time from ~~an~~ the ensemble of ECG signals for each lead to reduce low frequency baseline noise.

27. (Previously Presented) The apparatus as claimed claim 26 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for smoothing the median signal with a moving median filter to reduce high frequency noise.

28. (Currently Amended) The apparatus as claimed in claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for filtering the smoothed median signal using a wavelet frequency thresholding technique which subtracts magnitudes of any non-zero frequency components within a segment of the smoothed ECG median signal deemed to be an ~~the~~ isoelectric baseline segment from the ~~a~~ rest of the smoothed ECG median signal thus further de-noising it.

29. (Previously Presented) The apparatus as claimed in claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for vertically shifting the smoothed median signal so that a minimum value after peak of T is zero.

30. (Currently Amended) The apparatus as claimed in claim ~~22~~ 29 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for detecting and correcting baseline drift in the first set of ECG data.

31. (Currently Amended) The apparatus as claimed in claim 30 wherein detection the means for detecting includes means for testing for presence of a single crossing of ~~one~~ an isoelectric line by said first set of ECG data.

32. (Currently Amended) The apparatus as claimed in claim 31 further comprising means for rotating ~~an ensembled~~ said ensemble of ECG signals about a zero point ~~or otherwise transforming the ensembled ECG~~ to reconfigure the set of ECG data to have multiple crossings of said line.

33. (Currently Amended) The apparatus as claimed in claim ~~22~~ 26 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for applying a non-linear function ~~such as squaring amplitudes of the signal~~ for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.

34. (Currently Amended) The apparatus as claimed in claim ~~22~~ 33 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for summing squared amplitudes of ~~ensembled~~ an ensemble of orthogonal leads over all time instants to give a squared resultant vector of the ~~ensembled~~ ensemble of ECG signals.

35. (Currently Amended) The apparatus as claimed in claim 20 wherein the apparatus further includes means for finding a beginning of the QT interval from the median of said ensemble of ECG signals from all of said leads ~~by an established method~~.

36. (Currently Amended) The apparatus as claimed in claim 35 wherein the apparatus includes means for calculating the QT interval by subtracting the beginning of the QT interval, obtained from the median of said ensemble of ECG signals from all of said leads, from the end of the T wave obtained from said means for determining the end of the T wave.

37. (Previously Presented) The apparatus as claimed in claim 20 wherein the QT interval is measured for squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and a longest of QT measurements made in 3 dimensions is made.

38. (Previously Presented) The apparatus as claimed in claim 20 wherein the ECG signal data is acquired from a set of standard ECG leads including I, aVf and V2.

39. (Previously Presented) A record carrier comprising recorded program instructions for causing a programmable processor to perform the steps of the method as claimed in claim 1.

40. (Previously Presented) A record carrier comprising recorded program instructions for causing a programmable processor to implement an apparatus having the features claimed in claim 20.